IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

EXHIBIT A

Excerpts from

The Authoritative Dictionary of IEEE Standards Terms, Seventh Edition

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IEEE 100
The Authoritative Dictionary of
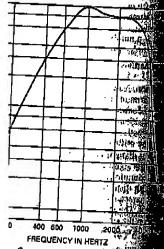# IEEE Standards Terms

Seventh Edition

◈IEEE

telephone influe...   ...line   1157   telephone operator

lence factor (TIF) (1) (high-voltage ...
s) A dimensionless quantity which ...
ghting and is used to express char...
a voltage or current wave shape fr...
ave on a voice-frequency commun...
by electromagnetic or electrostatic ind...
quencies and amplitudes of harmon...
circuit, among other factors, deter...
ctive influence on a voice commu...
essed in terms of $I \cdot T$ product cur...
is, $kV \cdot T$ product per kilovolt) is ...
TIF of a voltage or current wave i...
t of the sum of the squares (rss) of ...
iare (rms) values of all the sin...
ig in ac waves both fundamental an...
can-square value (unweighted) o...
ige weighting is derived from listen...
lative annoyance of speech imp...
ial of frequency f as heard thr...
elephone set. The result, called ...
hown in graphical and tabular for...
page in terms of relative interfer...

1980 SINGLE FREQUENCY TIF VALUES							
FREQ	TIF	FREQ	TIF	FREQ	TIF	FREQ	TIF
60	0.5	1020	5100	1860	7820	3000	9670
180	30	1080	5400	1980	8330	3180	8740
300	225	1140	5630	2100	8830	3300	8090
360	400	1260	6050	2160	8080	3540	6730
420	650	1380	6370	2220	9330	3660	6130
540	1320	1440	6650	2340	9840	3900	4400

1980 SINGLE FREQUENCY TIF VALUES							
FREQ	TIF	FREQ	TIF	FREQ	TIF	FREQ	TIF
660	2260	1500	6680	2460	10240	4020	3700
720	2760	1620	6970	2580	10800	4260	2750
780	3360	1740	7320	2820	10210	4380	2190
900	4350	1800	7570	2940	9820	5000	840
1000	8000						

TIF weighting characteristic
telephone influence factor

FREQUENCY IN HERTZ
C-message weighting
ephone influence factor
(COM/TA) ...

a voltage or current wave is ...
ratio of the square root of ...
lited root-mean-square (rms) ...
ents (including in alternating ...
d harmonics) to the rms (unw...
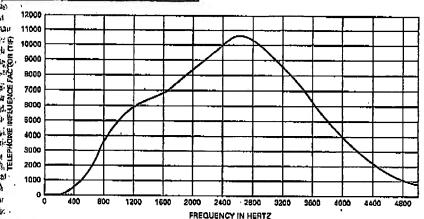vave. (The weightings are app...
nts of different frequencies ...
(IA/IPC) ...

y electrical-noise test ...
um of the squares of the we...
of all the sine-wave compon...
utrent waves, both fundame...
-mean-square value (unweig...
P represents the relative inte...
ents at the various harmonics...
r supply circuits. It is a fun...
f waveform and not of amp...
tion the characteristics of th...
all represented by c-messag...
int the coupling between the...
lephone circuit is directly ...
juency. TIF is also shown i...

$$\dfrac{\sqrt{\sum (X_f \cdot W_f)^2}}{X_t}$$

$$\sqrt{\sum \left(\dfrac{X_f \cdot W_f}{X_t}\right)^2}$$

the total effective or rms current (I) or voltage (kV)
the single-frequency effective current (I) or voltage
at frequency f, including the fundamental
the single-frequency TIF weighting at frequency f.
the TIF contribution of power-circuit voltage or
current at frequency f may be expressed as follows:

$$\dfrac{I_f W_f}{I_t}$$

The TIF weighting characteristic represents the relative
weighting effect of a voltage or current in a supply circuit at
frequency f. The weighting takes into account the relative
weighting effect of frequency f as heard through a telephone
handset (the c-message weighting) and the coupling be-
tween power and telephone circuit, assumed to be directly
proportional to frequency. It is defined as

$$\dfrac{\sqrt{\sum P_f^2}}{...}$$

... constant
the c-message weighting at frequency f
the frequency under consideration.

The TIF weighting characteristic is shown in the cor-
responding figure.
(COM/TA) 469-1988w

power and distribution transformers) Of a voltage or
current wave in an electric supply circuit, the ratio of the
square root of the sum of the squares of the weighted root-
mean-square values of all the sine-wave components (includ-

entire wave. Note: This factor was formerly known as tele-
phone interference factor, which term is still used occasion-
ally when referring to values based on the original (1919)
weighting curve. (PE/TR) C57.12.80-1978r
(5) For a voltage or current wave in an electric supply circuit,
the ratio of the square root of the sum of the squares of the
weighted root-mean-square values of all the sine-wave com-
ponents (including alternating current waves both fundamen-
tal and harmonic) to the root-mean-square value (unweighted)
of the entire wave. (IA/SPC) 519-1992

telephone line (data transmission) A general term used in
communication practice in several different senses, the more
important of which are:

— The conductor or conductors and supporting or containing
structures extending between telephone stations and
central offices or between central offices whether they
be in the same or in different communities.
— The conductors and circuit apparatus associated with a
particular communication channel.
(PE) 599-1985w

telephone modal distance The distance between the center of
the grid of a telephone handset transmitter and the center of
the lips of a human talker (or the reference point of an arti-
ficial mouth) when the handset is in the modal position. See
also: telephone station. (COM/TA) 269-1971w, [50]

telephone modal position The position a telephone handset as-
sumes when the receiver of the handset is held in close contact
with the ear of a person with head dimensions that are modal
for a population. See also: telephone station. (COM) [50]

telephone network A telecommunication network primarily in-
tended for telephony. (COM/TA) 823-1989w

telephone operator A person who handles switching and sig-
naling operations needed to establish telephone connections